

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION CONCERNING  
TRANSMITTAL OF COPY OF INTERNATIONAL  
PRELIMINARY REPORT ON PATENTABILITY  
(CHAPTER I OF THE PATENT COOPERATION  
TREATY)  
(PCT Rule 44bis.1(c)).

To:

SMITH, Marlin, R.  
SMITH IP SERVICES, P.C.  
P.O. Box 997  
Rockwall, TX 75087  
ETATS-UNIS D'AMERIQUE

Date of mailing (*day/month/year*)

20 August 2009 (20.08.2009)

Applicant's or agent's file reference

021812U1PCT

IMPORTANT NOTICE

International application No.

PCT/US2007/061703

International filing date (*day/month/year*)

06 February 2007 (06.02.2007)

Priority date (*day/month/year*)

Applicant

HALLIBURTON ENERGY SERVICES, INC. et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 021812U1PCT	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2007/061703	International filing date (day/month/year) 06 February 2007 (06.02.2007)	Priority date (day/month/year)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant HALLIBURTON ENERGY SERVICES, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No: +41 22 338 82 79	Date of issuance of this report 11 August 2009 (11.08.2009)  Authorized officer  <div style="text-align: center; font-weight: bold;">Dorothee Mülhausen</div> e-mail: <a href="mailto:pi01.pct@wipo.int">pi01.pct@wipo.int</a>
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## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITYTo:  
MARLIN R. SMITH  
SMITH IP SERVICES, P.C.  
P.O. BOX 997  
ROCKWELL, TX 75087

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 021812UIPCT		Date of mailing (day/month/year) <b>21 MAR 2008</b>
International application No. PCT/US07/61703		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) 06 February 2007 (06.02.2007)	Priority date (day/month/year)	
International Patent Classification (IPC) or both national classification and IPC IPC: E21B 33/12( 2006.01) USPC: 166/387		
Applicant HALLIBURTON ENERGY SERVICES, INC.		

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

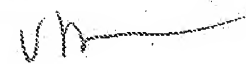
## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 14 February 2008 (14.02.2008)	Authorized officer Jennifer Gay  Telephone No. 571-272-5150
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Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US07/61703

## Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a)).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper  
☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in electronic form.  
☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US07/61703

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 3-5, 7, 11-15, 20-23, 28, 29 and 31	YES
	Claims 1, 2, 6, 8-10, 16-19, 24-27 and 30	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-31	NO
Industrial applicability (IA)	Claims 1-31	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1, 2, 6, 8-10, 16-19, 24-27 and 30 lack novelty under PCT Article 33(2) as being anticipated by Baugh et al. (US Patent No. 4,375,240).

Baugh discloses a packer assembly 16, comprising: multiple seal elements 150, each seal element 150 being swellable in a downhole environment, each seal element 150 having at least one face inclined relative to a longitudinal axis (Fig. 1A) of the packer assembly 16, and the inclined faces of adjacent seal elements contacting each other. The packer assembly further comprises the multiple seal elements 150 are installed on a single base pipe 124. The packer assembly further comprises at least two support rings 132 and 152 straddle the multiple seal elements 150. The packer assembly further comprises at least one of the support rings 132 and 152 includes a face 154 and 156 inclined relative to the longitudinal axis, and wherein the support ring face 154 and 156 is arranged to bias an adjacent one of the seal elements 150 into sealing contact when the adjacent seal element 150 swells downhole. The packer assembly further comprises at least one of the support rings 132 and 152 includes a surface which is radially offset relative to a surface of an adjacent one of the seal elements, and wherein the support ring surface is arranged to bias the adjacent seal element into sealing contact when the adjacent seal element swells downhole (Figs. 1A, 2A). The packer assembly further comprises the support ring 132 and 152 surface is parallel to the adjacent seal element 150 surface (Figs. 1A, 2A).

Claims 3-5, 29 and 31 lack an inventive step under PCT Article 33(3) as being obvious over Baugh et al. (US Patent No. 4,375,240).

Baugh discloses all of the limitations of the above claims with the exception of sliding seals onto a body, helically wrapping seals around a body, and using a longitudinal slit to place a seal on a body. All of these methods of applying a seal are well known in the art and could be applied with predictable results by a person having ordinary skill.

Claims 7, 11, 14, 20 and 28 lack an inventive step under PCT Article 33(3) as being obvious over Baugh et al. (US Patent No. 4,375,240) in view of Patel (US Patent Application Publication No. 2005/0199401).

Baugh discloses all of the limitations of the above claims with the exception of swelling a sealing element without the usage of axially compressing seal rings. Patel discloses seal element 12 sealing between tubular 20 and well conduit 6 where seal 12 is expanded by exposure to a triggering fluid. It would have been obvious to a person having ordinary skill in the art at the time of the invention to include a seal element swelled by a triggering fluid on the seal of Baugh in view of Patel to provide a seal that does not require mechanical actuation.

Claims 12, 13, 15, 21, 22 and 23 lack an inventive step under PCT Article 33(3) as being obvious over Baugh et al. (US Patent No. 4,375,240) in view of Milberger et al (US Patent No. 6,705,615).

Baugh discloses all of the limitations of the above claims with the exception of using seal elements having differing rigidities and reinforcing members on a seal element. Milberger discloses seal elements 20 and 22 having varying rigidities and reinforcement members 14, 16 and 18 to maintain the seals in place. It would have been obvious to a person having ordinary skill in the art to add a reinforcing member to a seal on the seal of Baugh in view of Milberger to ensure that a seal contacts a surface in the intended way. It also would have been obvious to a person having ordinary skill in the art at the time of the invention to include seals of varying rigidity in place of the seals of Baugh in view of Milberger to provide a seal structure that is selectively stronger during certain circumstances.

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 021812U1PCT	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US07/61703	International filing date (day/month/year) 06 February 2007 (06.02.2007)	(Earliest) Priority Date (day/month/year)
Applicant HALLIBURTON ENERGY SERVICES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of \_\_\_\_\_ sheets.

☐

It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of:

☒

the international application in the language in which it was filed.

☐

a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 Rule 43.6 bis(a)

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒

the text is approved as submitted by the applicant.

☐

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒

the text is approved as submitted by the applicant.

☐

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 5B

☐

as suggested by the applicant.

☒

as selected by this Authority, because the applicant failed to suggest a figure.

☐

as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/61703

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: E21B 33/12 (2006.01)

USPC: 166/387

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S.: 166/387, 101, 137, 387

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,375,240 (Baugh et al.) 1 Mar. 1983 (1.03.1983), column 6, lines 49-58.	1, 2, 6, 8-10, 16-19, 24-27 and 30
Y		3-5, 7, 11-15, 20-23, 28, 29 and 31
Y	US 2005/0199401 (Patel et al.) 15 Sept. 2005 (15.09.2005) par. 0028.	7, 11, 14, 20 and 28
Y	US 6,705,615 (Milberger et al.) 16 Mar. 2004 (16.03.2004) column 5, lines 38-56.	12, 13, 15 and 21-23

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may have double as priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"C" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

14 February 2008 (14.02.2008)

Date of mailing of the international search report

Name and mailing address of the ISA/US

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Alexandria, Virginia 22313-1450

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